

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2004/016898

International filing date (day/month/year)
08.11.2004

Priority date (day/month/year)
11.11.2003

International Patent Classification (IPC) or both national classification and IPC
B41J2/05

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
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International application No.
PCT/JP2004/016898

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
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International application No.
PCT/JP2004/016898

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2,3,5-13,15-26
	No: Claims	1,4,14
Inventive step (IS)	Yes: Claims	
	No: Claims	1-26
Industrial applicability (IA)	Yes: Claims	1-26
	No: Claims	

2. Citations and explanations

see separate sheet

0. Reference is made to the following documents:

D1 = JP-A-2001 191531

D2 = EP-A-1 164 013

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

- 1.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent Claims 1 and 14 is not new in the sense of Article 33(2) PCT.
- 1.2 Document D1 discloses a print head having a plurality of printing elements R1...Rn, a plurality of switching elements Q1...Qn arranged to control the printing elements, a reference voltage circuit Tr1,r1, a reference current generation circuit Tr2-Tr4,Tr8-Tr11 for generating a reference current in accordance with the reference voltage, and a plurality of constant current sources Tr14-Tr(n+13) that supply constant current to the printing elements in accordance with the reference current.
Consequently, D1 reveals all features of both Claims 1 and 14 which are no longer novel.
- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent Claims 8,20,25 and 26 does not involve an inventive step in the sense of Article 33(3) PCT.
- 2.2 Independent Claims 8 and 20 do in addition to the features defined in Claims 1 and 14 specify that the printing elements are divided into a plurality of blocks. This is however a conventional design feature which is exemplified by for instance D2 which discloses a plurality of heating elements divided into a plurality of blocks, with each block consisting of a predetermined number of spatially arrayed heating elements of the plurality of heating elements corresponding to the plurality of nozzles, and where

a phase signal PH is sequentially supplied to a set of heating elements simultaneously driven over the respective blocks, thus sequentially driving the respective heating elements in a time-divisional manner. For the skilled person it is obvious to modify the device of D1 such that its printing elements are divided into blocks as shown in D2 in order to reduce the maximum power usage. The obvious combination of D1 and D2 thus leads to the subject-matter of Claims 8 and 20 which do not involve anything inventive.

Independent Claims 25 and 26 do in addition to the features specified in Claim 1 merely contain standard features of an ink jet printer which do not involve anything inventive.

3. Most of the additional features contained in the dependent Claims 2-7,9-13,15-19 and 21-24 do merely concern features which are either known from the available prior art or do only relate to minor modifications therefrom and which do not involve anything inventive. The combination of any of these features with the independent claims do not result in any allowable claims.